

REMARKS/ARGUMENTS

In the specification, paragraph [0083] has been amended to overcome the examiner's objection.

In amended Fig. 7, a cross section of the sensor node is added, together with various modifications to the sensor node drawing.

Claims 2 has been canceled. Claims 15-22 have been withdrawn. Claims 1, 3-5 have been amended. Claims 23-47 have been added.

The Office Action (1) required election/restriction between group I (claims 1-14), group II (claim 15) and group III (claims 16-22), (2) rejected claims 1, 6-10, and 13-14 under 35 U.S.C. 102 (b) as being anticipated by Iggulden et al. (US 4,852,802), (3) rejected claims 1, 5, and 13-14 under 35 U.S.C. 102 (b) as being anticipated by Reed et al. (US 5,635,710), (4) rejected claims 1, 6, 11, and 13-14 under 35 U.S.C. 102 (b) as being anticipated by Twersky et al. (US 4,445,788), (5) rejected claims 11-12 under 35 U.S.C. 103(a) as being unpatentable over Iggulden et al. in view of Hulme (GB 2,320,572), and (6) rejected claims 1-14 under 35 U.S.C. 112 as failing to comply with the enablement requirement.

1. Regarding election/restriction requirement, applicant affirms the election without traverse of Group I, claims 1-14.

2. Regarding claims 1, 6-10, and 13-14 under 35 U.S.C. 102 (b) as being anticipated by Iggulden et al. (US 4,852,802), applicant has modified the claims to overcome the examiner's rejection. Claim 1 added the gasket feature to the wireless sensor. Claim 23 added the collar feature to the wireless sensor. Claims 24-35 are new and are dependent of claim 23. And claim 36 added the protruding structure to the wireless sensor. Claims 37-47 are new and are dependent of claim 36.

Amendments to the Drawings:

The attached sheet of drawings includes change to Fig. 7. This sheet replaces the original sheet of Fig. 7. In Fig. 7, modifications to the soil probe diagram are made, and a cross section diagram for the soil probe sensor node is included.

Attachment:

Annotated sheet showing changes

Replacement sheet

Regarding the collar as disclosed by claim 6, applicant submits that Iggulden et al. does not disclose a collar as specified by the present invention. The purpose of the present invention collar is to anchor the sensor probe above the soil, or to protect the sensor probe from encroachment by surrounding plants, to reduce the build up of water around the probe, and to reduce grass shading of the sensor probe (paragraph 0083, lines 11-15). Thus the collar diameter is preferably about 4 to 6 inches wide, determined by the soil parameters, the grass conditions and the water conditions. The collar is preferably a thin solid disk of about 1/16 to 1/4 inches thick, though thick and hollowed disk is acceptable.

In contrast, the encasing of the sensor probe of Iggulden et al., though might look like a collar, but since it serves a different purpose, i.e. to house the electronics, it might not be appropriate for the collar function as described in the present invention. For example, the encasing of Iggulden et al. is designed to be as small as possible while the collar of the present invention has specific size requirement.

Regarding the protruding structures as disclosed by claim 14, applicant submits that Iggulden et al. does not disclose a protruding structures to house the soil sensor, to improve the contact force between the sensor and the soil, and to further improve the stability of the sensor probe in the ground (paragraph 0084, lines 1-5).

Regarding the first gasket as disclosed by claims 2-4, applicant submits that Iggulden et al. does not disclose a gasket that extends out from the probe body. The gasket serves to increase the contact force with the surrounding soil for improving the stability of the installed sensor node and reducing the possibility that water will flow down along the side of the sensor body. The gasket can have one way movement, thus aiding in the insertion of sensor probe, but prevents the sensor probe from being pushed up out of the soil by regular expansion cycles (paragraph 0083, lines 16-32).

Thus applicant submits that Iggulden et al. does not disclose nor anticipate the sensor probe with a collar, or a protruding sensor structure in the probe body, or a gasket in the probe body.

3. Regarding claims 1, 5, and 13-14 under 35 U.S.C. 102 (b) as being anticipated by Reed et al. (US 5,635,710), applicant has modified the claims to overcome the examiner's rejection.

Regarding the protruding structures as disclosed by claim 14, applicant submits that, similar to the above argument with Iggulden et al., Reed et al. does not disclose a protruding structures to house the soil sensor.

Regarding the first gasket as disclosed by claims 2-5, applicant submits that, similar to the above argument with Iggulden et al., Reed et al. does not disclose a first gasket that extends out from the probe body. Reed et al. only discloses a second gasket inside the probe body to seal the sensor mast against the probe body, but not the first gasket extending outside the probe body.

Thus applicant submits that Reed et al. does not disclose nor anticipate the sensor probe with a collar, or a protruding sensor structure in the probe body, or a first gasket in the probe body.

4. Regarding claims 1, 6, 11, and 13-14 under 35 U.S.C. 102 (b) as being anticipated by Twersky et al. (US 4,445,788), applicant has modified the claims to overcome the examiner's rejection.

Regarding the collar as disclosed by claim 6, applicant submits that Twersky et al. does not disclose a collar as specifying by the present invention. Similar to the argument above with Iggulden et al., the purpose and design of the present invention collar is markedly different from the encasing of the sensor probe of Twersky et al.

Regarding the protruding structures as disclosed by claim 14, applicant submits that, similar to the above argument with Iggulden et al., Twersky et al. does not disclose a protruding structures to house the soil sensor.

Regarding the first gasket as disclosed by claims 2-4, applicant submits that, similar to the above argument with Iggulden et al., Twersky et al. does not disclose a first gasket that extends out from the probe body.

Thus applicant submits that Twersky et al. does not disclose nor anticipate the sensor probe with a collar, or a protruding sensor structure in the probe body, or a gasket in the probe body.

5. Regarding claims 11-12 under 35 U.S.C. 103(a) as being unpatentable over Iggulden et al. in view of Hulme (GB 2,320,572), applicant has modified the claims to overcome the examiner's rejection.

As discussed above, applicant submits that Iggulden et al. does not disclose a collar, a gasket or a protruding sensor structure as specifying by the present invention. Thus even in view of Hulme, applicant submits that Iggulden et al. does not disclose nor anticipate the sensor probe with a collar, or a protruding sensor structure in the probe body, or a gasket in the probe body.

6. Regarding claims 1-14 under 35 U.S.C. 112 as failing to comply with the enablement requirement. applicant has modified the drawings and specification to overcome the examiner's rejection.

In summary, applicant submits that none of these references, singly or combination can anticipate nor can render these claims obvious.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Dale K. Hitt", written in a cursive style.

Dale K. Hitt